What is claim d is

1. A method for varying the direction of a light beam passing through a micro-machined device, said method comprising
   a. directing said light beam through a transparent membrane separating two refractive regions of differing refractive index, said membrane being attached at its perimeter to a fixed member, and
   b. deforming said membrane in concave fashion.

2. A method as in claim 1, wherein said deformation is induced by electrostatic force.

3. A method as in claim 1, wherein at least one of said refractive regions comprises a refractive liquid.

4. A method as in claim 3, wherein said membrane is in tensile stress.

5. A method as in claim 3, wherein said tensile stress is induced during fabrication of said membrane.

6. A method as in claim 4, wherein the perimeter of said membrane is substantially circular.

7. A method as in claim 4, wherein said membrane is one of a plurality of substantially identical membranes fabricated on one contiguous section of silicon wafer, said membrane being capable of being deformed independently of any other one of said multiplicity of membranes.

8. A method as in claim 7, wherein more than one of said plurality of substantially identical membranes are in contact with the same body of refractive liquid.

9. A method as in any of the above claims, wherein said refraction is controlled via a feedback method.

10. A method as in claim 9, wherein said feedback method comprises the use of a signal indicative of the extent of one or more of said refraction, said deformation, the electrostatic force between said membrane and an electrode on said fixed member, and the electrical capacitance between said membrane and said electrode.

11. A method as in claim 10, wherein said feedback method comprises linearization of said deformation process.

12. A method as in claim 11, wherein said linearization is achieved by the use of look-up tables.

13. A method as in claim 12, wherein said look-up tables are programmed into memory cells resident on the same piece of contiguous silicon as said membrane.

14. An adaptive lens for refracting a light beam transiting through a micro-machined device, said adaptive lens comprising a transparent membrane separating two refractive regions of differing refractive index, said transparent membrane being deformable to vary by said deformation the extent of said refraction.

15. An adaptive lens as in claim 14, wherein said deformation is induced by electrostatic force.

16. An adaptive lens as in claim 14, wherein at least one of said refractive regions comprises a refractive liquid.

17. An adaptive lens as in claim 16, wherein said membrane is in tensile stress.

18. An adaptive lens as in claim 17, wherein said tensile stress is induced during fabrication of said membrane.

19. An adaptive lens as in claim 16, wherein said membrane is substantially circular.

20. An adaptive lens as in any one of claim 3, claim 4, claim 5, claim 6, claim 7 or claim 8, wherein said membrane is one of a plurality of substantially

identical membranes fabricated on one contiguous section of silicon wafer, said membrane being capable of being deformed independently of any other one of said multiplicity of membranes.

21. An adaptive lens as in claim 20, wherein more than one of said plurality of substantially identical membranes are in contact with the same body of refractive liquid.

22. An adaptive lens within a micro-machined device, said adaptive lens comprising of a transparent membrane attached at its perimeter to a fixed member and

a. said membrane separating two refractive regions of differing refractive index, and

b. said membrane being capable of changing its curvature in response to an electrical control signal, the degree of refraction of said adaptive lens being controlled by said curvature.

23. An adaptive lens as in claim 22, wherein at least one of said refractive regions comprises a refractive liquid.

24. An adaptive lens as in claim 23, wherein said membrane is in tensile stress.

25. An adaptive lens as in claim 22, wherein said membrane is one of a plurality of substantially identical membranes fabricated on one contiguous section of silicon wafer, said membrane being capable of being deformed independently of any other one of said multiplicity of membranes.

26. An adaptive lens as in claim 25, wherein more than one of said plurality of substantially identical membranes are in contact with the same body of refractive liquid.

27. An adaptive lens as in any one of claim 14 or claim 22 wherein said refraction is controlled via a feedback mechanism.

28. An adaptive lens as in claim 27 wherein said feedback mechanism comprises a feedback sensor indicating the extent of one or more of said refraction, said deformation, the electrostatic force between said membrane and an electrode on said fixed member, and the electrical capacitance between said membrane and said electrode.

29. An adaptive lens as in claim 28 wherein said feedback mechanism comprises a linearization means to linearize said adaptive lens.

30. An adaptive lens as in claim 29 wherein said linearization means comprises look-up tables.

31. An adaptive lens as in claim 30 wherein said look-up tables are programmed into memory cells resident on the same piece of contiguous silicon as said adaptive lens.